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ABSTRACT

Presented as part of a symposium on evaluation on juvenile diversion programs, this brief paper describes several specific research procedures which have been utilized to help decide which type of diversion approach is best for specific types of clients. Procedures discussed are the regression discontinuity design, the tie-breaker design, and the nonequivalent comparison group design. Advantages and disadvantages of the use of each procedure are delineated. (CKJ)

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APPLICATION OF THREE QUASI-EXPERIMENTAL DESIGNS

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From a research perspective a valid interpretation of a diversion program's effectiveness is greatly facilitated by the utilization of experimental methods. In the context of juvenile diversion, the evaluation researcher typically does not have the option of employing experimental procudures (i.e. random assignment to diversion treatment/no-treatment) and from a public/juvenile welfare perspective such procedures may be clearly inappropriate. As a consequence the researcher is required to modify his/her methodological strategy, thereby resorting to research designs which are compatible with such situations where there is little or no control over who is selected or not selected to receive the program treatment. This paper describes the application of three quasi-experimental procedures which have been utilized in an attempt to address this treatment-recipient selection issue within the diversion evaluation context.

The procedures to be discussed are known as (a) the regression discontinuity design, (b) the tie-breaker design, and (c) the non-equivalent comparison group design. For ease of exposition, recidivistic contact will be considered as the primary outcome measure, although other equally plausible outcomes (e.g. school performance) could be employed in conjunction with these designs.

Variations on a theme; the decision protocol. Unlike random assignment to treatment conditions which conveniently allows us to ignore pretreatment differences (by assuming that differences will be randomly distributed across conditions), entry into a program on a non-random basis requires careful examination of these confounding selection factors. Each of the designs to be discussed represents variations on a general decision protocol which was designed to assess the various selection

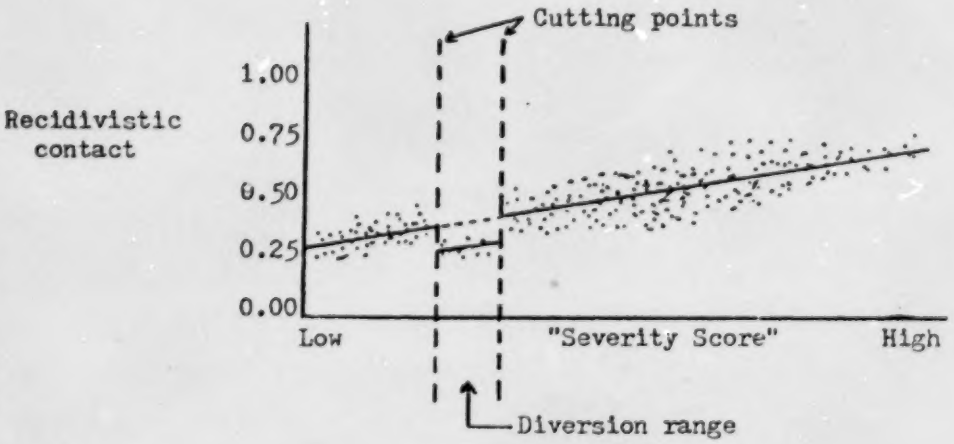
factors.

Identifying the selection criteria necessitated an examination of decision-making practices of the law enforcement personnel responsible for assignment of juveniles into diversion or non-diversion disposition categories. As an initial phase of this research, extensive unstructured interviews regarding differences between juveniles across all dispositions were conducted with a cross-section of police/sheriff officers. Based on these interviews, a long list of case characteristics was compiled. Next a sample of actual juvenile case records was examined and scored in relation to these characteristis. These data were analyzed by a discriminant analysis procedure for the purpose of isolating case characteristics that differentiated among major dispositons such as referral to probation versus return to parental custody. Having established objectively a subset of case characteristics that could predict the disposition decision, and in consultation with law enforcement personnel regarding the appropriateness of the predicted decisions, a decision protocol was devised which would be applied to the description of new cases. This protocol consisted of ratings for 14 of the most salient characteristics involving aspects of the immediate offense (e.g. involving victims or money) and juvenile characteristics (e.g. priors, attitudes, etc.) The three research designs to be discussed are essentially applications of this basic decision protocol.

Regression-Discontinuity. Perhaps the easiest way to describe the applicability of this procedure is through the use of a graphical display. Figure 1 presents a schematic view of this design applied to the juvenile diversion evaluation. Using the previously established salient characteristics of the offense which distinguishes among the relevant

dispositions, a weighting scheme was applied to these variables (according to their importance) which, when summated, would provide a composite score. This score can be viewed as a summary of the severity of the particular case which places each juvenile along the pretest continuum of the regresssion discontinuity design. The unique feature of the regression discontinuity design is the establishment of cutting points, one which specifies the lower boundary for diversion referral and the other which corresponds to the upper boundary for diversion referral. These cutting points separate diversion cases from counsel-and-release dispositions and non-detained petition cases, respectively. The ideal utilization of this scheme would entail assignment of disposition solely on the basis of where a juvenile fell along the continuum.

Figure 1. Hypothetical outcome of a regression-discontinuity design depicting a discontinuity within the diversion (treatment) range for 6 month recidivism.



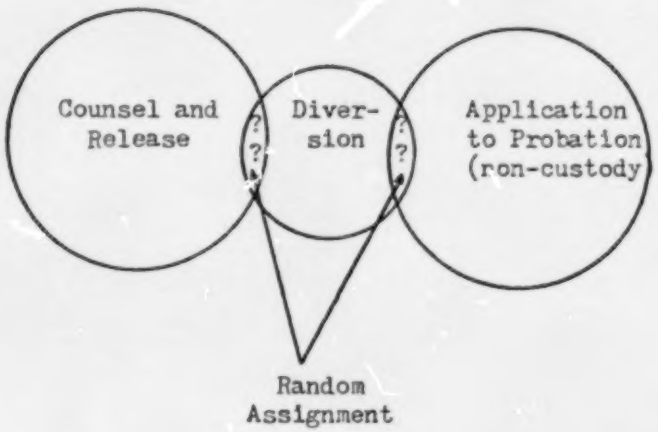
Note: the dashed line across the diversion range represents the expected recidivism assuming no diversion effect.

Assuming a linear relationship between this pretest continuum and the dependent measure (in this case recidivism) the effects of diversion (on recidivism) can be assessed by examining the extent to which recidivism is lower within the specified diversion cutting point interval, i.e., it is discontinuous across this range in relation to the lower and higher point ranges. The dashed line connecting the regression lines for values on either side of the diversion range represents the expected recidivism for diversion cases assuming the absence of a diversion impact on recidivism. Thus, the analysis strategy requires first a prediction of recidivism using all cases falling on either side of the cutting points and then an examination of the actual diversion recidivism against the predicted recidivism for this range. Possible limitations and further considerations involved with this procedure will be discussed in the summary which compares and contrasts each design from a research perspective.

The Tie-Breaker Design. Full randomization across the range of disposition options would provide the strongest evidence for documenting program effects. However, from a public/juvenile welfare perspective this is clearly inappropriate, i.e., there are some juveniles who clearly should be "detained" and not simply released and vice versa. However, there are a limited number of cases where such a dichotomous distinction can not be as clearly specified. Here the officer may view the alternatives between which course of action to take as being "tied" for a particular juvenile. With diversion as an alternative there are two points where an officer may feel that alternatives are equally attractive. This situation is graphically displayed in Figure 2. The

points where the three dispositions overlap (indicated by ?'s) are conceptually those cases where alternatives are "tied". It is those "grey areas" where the officer is asked to "break the tie" by employing a random assignment procedure.

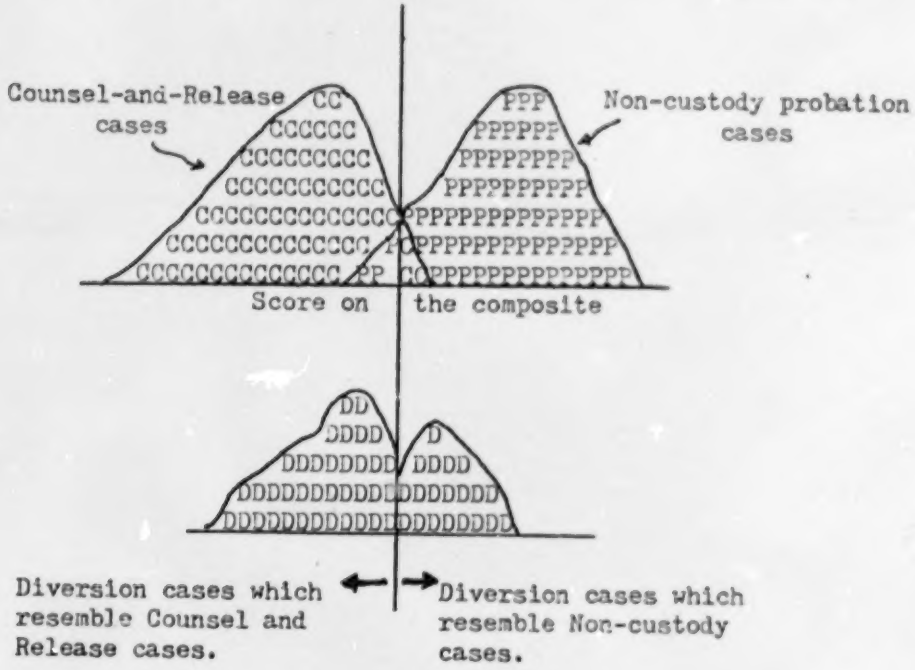
Figure 2. Schematic representation of the "Tie-Breaker" design applied to the disposition decision.



As suggested in Figure 2 by the different size circles associated with each disposition and the small proportion or overlapping areas on each side of the diversion caseload there are typically few cases where the officer sees alternatives as equally attractive such that a tie-breaker procedure could be employed. Nonetheless, a sample of 50 juveniles in each of the tie-breaker categories (100 juveniles in total) from each of the police jurisdictions would have sufficient stability to provide an assessment of the impact of diversion.

Non-equivalent comparison group design. The inherent non-equivalence of characteristics of juvenile cases who receive different dispositons creates ambiguity regarding the interpretation of outcomes. This third design utilizes the information obtained from the decision protocol in an attempt to statistically adjust for these inherent differences. Using the discriminant analysis procedure a composite score is generated which weights each protocol chracteristic according to how well it discriminates the counsel-and-release cases from the NDP cases. After establishing that this weighting function is an accurate discriminator the equation is applied to the rated characteristics of the diversion cases. The end product is an "after the fact" quasi-matching of cases which splits the diversion cases into at least two groups, those who resemble the counsel-and-release caseload and those who resemble the NDP cases. Figure 3 provides a graphical display of this procedure. The advantage of this procedure is that it makes the diversion cases less dissimilar to either of the other dispositions by isolating those cases which, on average, resemble one of the alternate dispositions. Of course, the possibility that the salient characteristics upon which this classification is carried out are not necessarily an adequate description of the special features of the diversion caseload, as such this procedure is open to the same criticism associated with any matching strategy. On the other hand, the examination differences (or lack of differences) between these groups on the variables which make up the composite can facilitate the interpretation by allowing one to rule out certain plausible rival hypotheses. The extent to which other independent sources of information correspond with those obtained from this procedure lends increased confidence to the validity of the finding.

Figure 3. Graphical display of the non-equivalent comparison group design using the discriminant analysis to assess non-equivalence among the counsel-and-release, non-custody probation, and diversion caseloads.


Counsel-and-Release cases
Non-custody probation cases
Score on the composite
Diversion cases which resemble Counsel and Release cases.
Diversion cases which resemble Non-custody cases.

Summary

Each of the foregoing research procedures reprsents our response to a particuiar research problem. In deciding which design to implement at a particular agency the general strategy has been to implement the procedures which will receive at least minimal positive response by those officers who are requested to carry out the procedure. Our experience with these procedures reveals that not all designs are equally well received.

The regression discontinuity design, while probably the most sophisticated, requires considerably cooperation from the police agency. To successfully utilize the regression discontinuity design it is necessary to (1) establish, on a station by station basis, the two cutting point values, (2) provide an option for the officer to override the decision

generated by the scheme and (3) monitor very closely the officer's utilization of the scheme to insure that it is being accurately completed before the decision is reached. In practice the officers may complete the form after reaching their decision in which case the recorded point values can be "juggled" so as to be consistent with the cutting point scheme. Further, given that the cutting points must be established prior to the use of the procedure it may well be the case that implementation of this procedure will perpetuate decision practices which are inconsistent with the aims of the diversion project (e.g. perpetuate the diversion of "lightweight" cases rather than cases that were potentially referrable to probation.)

The tie-breaker design, since it doesn't require following the point scheme required by the regression discontinuity is easier to implement and is unaffected by the issues plaguing the regression discontinuity procedure. The major drawbacks are (1) there are few cases where the officer is uncertain as to which disposition is to be assigned and in order to build a substantial enough case load this procedure may have to be implemented for a year or longer (depending on arrest case load), and (2) many officers are reluctant (and in some cases resistent) to employ a procedure which requires them to assign a disposition according to a chance scheme. Nonetheless, from a research perspective this design is an attractive alternative.

Finally, implementation of the non-equivalent comparison design poses few operational difficulties; although it is the weakest of the three designs. Since the goodness of the adjustment for preservice differences is dependent upon the adequacy of the decision protocol variables, the

interpretation of outcome differences is somewhat equivocal. Plausible rival hypotheses must be ruled out with other external information. Further, the adequacy of the adjustment is dependent upon the representativeness of the case load used to generate the linear composite. This representativeness issue requires careful monitoring of who is completing the form and on which juveniles. In general, this design strategy is the weakest of the three although it is the most versatile and can be employed for each of the other strategies if they are not adequately carried out.